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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,979	12/26/2001	Kazuhito Shimomura	P 290560 T2TT-01S0441-1	7810
909	7590	03/31/2004	EXAMINER	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			RODRIGUEZ, GLENDA P	
			ART UNIT	PAPER NUMBER
			2651	
			DATE MAILED: 03/31/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/025,979

Applicant(s)

SHIMOMURA ET AL.

Examiner

Glenda P. Rodriguez

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3,8-10,23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,8-10,23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 8, 9, 10, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US Patent No. 5, 486, 967) in view Sakai et al. (US Patent No. 4, 656, 533).

Regarding Claim 1, Tanaka et al. teach a disk drive comprising:

A disk medium adapted perpendicular magnetic recording (See Abstract and Fig. 4 as depicted the perpendicular recording);

A read head constructed and arranged to read a perpendicular magnetic recorded data signal from the disk medium (and Fig. 4, Element 101 and 102);

A preamplifier circuit (Fig. 50, Element 1004) including a read amplifier constructed and arranged to amplify a read signal output from the read head (Col. 31, Line 5 and Fig. 50),

A data channel constructed and arranged to reproduce data from the read signal output from the preamplifier circuit (Col. 31, Line 20-22).

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Tanaka et al. fail to teach an adjusting circuit, which adjusts the low cut-off frequency of a read signal output from the read amplifier. However, this feature is well known in the art as disclosed by Sakai et al., wherein it teaches a read channel that has a preamplifier, a low pass filter that changes its cut-off frequency (or adjusting circuit) (Pat. No. 4, 656, 533; See Fig. 3, and Col. 4, Line 58 to Col. 5, Line 8). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Tanaka et al.'s invention in order to adjust the cut off frequency to remove noise components.

Regarding Claim 8, Tanaka et al. teaches a preamplifier device for a disk drive including a disk medium for perpendicular magnetic recording and a read head data from the disk medium, said preamplifier device comprising:

A read amplifier, which amplifies a read signal output from the read head (Pat. No. 5, 486, 967; Col. 31, Line 5 and Fig. 50, Element 1004);

Tanaka et al. fail to teach an adjusting circuit, which adjusts the low cut-off frequency of a read signal output from the read amplifier. However, this feature is well known in the art as disclosed by Sakai et al., wherein it teaches a read channel that has a preamplifier, a low pass filter that changes its cut-off frequency (or adjusting circuit) (Pat. No. 4, 656, 533; See Fig. 3, and Col. 4, Line 58 to Col. 5, Line 8). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Tanaka et al.'s invention in order to adjust the cut off frequency to remove noise components.

Regarding Claims 3 and 10, Tanaka et al. and Sakai et al. teach all the limitations of Claims 1 and 8, respectively. Tanaka et al. and Sakai et al. fail to teach wherein the adjusting circuit comprises a filter circuit constructed and arranged to adjust the low cut-off frequency to 50 kHz or less or in range of from 1/2000 or less of the maximum recording frequency of the disk medium to a DC level. One of ordinary skill in the art would have been motivated to have adjusted the low cut-off frequency to 50 kHz or less or in range of from 1/2000 or less of the maximum recording frequency of the disk medium in order to optimize the data signal being reproduced in the medium since such ranges, absent any critically (i. e., unobvious and/or unexpected result(s)), are generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (CCPA 1955). Moreover, in the absence of any critically (i. e., unobvious and/or unexpected result(s)), the parameters set forth would have been obvious to a person of ordinary skill in the art at the time the invention was made, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Regarding Claim 9, Tanaka et al. and Sakai et al. teach all the limitations of Claim 8. Tanaka et al. further teach a circuit constructed and arranged to send the read signal output from the adjusting circuit to a data channel included in the disk drive, the data channel being constructed and arranged to restore perpendicular magnetic recorded data onto the disk medium (Pat. No. 5, 486, 967; Col. 31, Lines 4-20).

Regarding Claims 23 and 24, Tanaka et al. and Sakai et al. teach all the limitations of Claims 1 and 8, respectively. Sakai et al. further teach wherein the adjusting circuit is constructed and arranged to adjust the low-cut-off frequency such that waveform deformation of the read signal is reduced (Pat. No. 4, 656, 533; Col. 2, Lines 15-20. Sakai et al. teaches that the signal for the reproducing circuit is chosen with a characteristic suited for the selected mode (i.e. the signal is chosen according with the desired result).). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Tanaka et al.'s invention in order to adjust the cut off frequency to remove noise components.

### ***Response to Arguments***

Examiner acknowledges that Claims 2, 4-7 and 11-22 have been cancelled.

Applicant's arguments with respect to claims 1, 3, 8, 9, 10, 23 and 24 have been considered but are moot in view of the new ground(s) of rejection due to the newly amended claims presented on 1/27/2004.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jiang et al. (US Patent No. 6, 621, 649) which teaches a preamplifier with an adjusting circuit which adjusts the cut-off frequency in a read circuit.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703)305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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gpr

March 23, 2004.

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SUPERVISORY PATENT EXAMINER  
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